

## CLAIMS

What is claimed is:

- 1           1.     A method for filtering a receive signal in a wireless receiver,  
2     comprising:  
3           providing a received signal to an amplifier; and  
4           filtering the received signal such that noise contributed by the filter is blocked  
5     from an output of the amplifier at a first frequency.
- 1           2.     The method of claim 1, wherein noise contributed by the filter is passed  
2     to the output of the amplifier only at a frequency other than the first frequency.
- 1           3.     The method of claim 1, wherein the filter is a frequency dependent  
2     negative resistance implemented using a general impedance converter.
- 1           4.     The method of claim 3, wherein noise generated by the general  
2     impedance converter is blocked from the output of the amplifier at the first frequency.
- 1           5.     The method of claim 4, wherein the first frequency is the in-band  
2     receive frequency.
- 1           6.     A low-noise filter for a wireless receiver, comprising:  
2     an amplifier; and  
3     a filter comprising a frequency dependent negative resistance implemented  
4     using a general impedance converter to realize a bi-quad filter.
- 1           7.     The low-noise filter of claim 6, wherein the general impedance  
2     converter further comprises:  
3     a pair of operational amplifiers; and

4           at least one capacitance configured to prevent noise generated by the pair of  
5           operational amplifiers from appearing at an output of the amplifier at a first frequency.

1           8.       The low-noise filter of claim 7, wherein the first frequency is the in-  
2           band receive frequency.

1           9.       The low-noise filter of claim 8, wherein noise generated by the pair of  
2           operational amplifiers appears at the output of the amplifier at a second frequency.

1           10.      The low-noise filter of claim 9, wherein the second frequency is an out-  
2           of-band receive frequency.

1           11.    A portable transceiver, comprising:  
2           a modulator configured to receive and modulate a data signal;  
3           an upconverter configured to receive the modulated data signal and provide a  
4 radio frequency (RF) signal;  
5           a transmitter configured to transmit the RF signal; and  
6           a direct conversion receiver including an amplifier and a filter, the filter  
7 comprising a frequency dependent negative resistance implemented using a general  
8 impedance converter to realize a bi-quad filter.

1           12.    The portable transceiver of claim 11, wherein the general impedance  
2 converter further comprises:  
3           a pair of operational amplifiers; and  
4           at least one capacitance configured to prevent noise generated by the pair of  
5 operational amplifiers from appearing at an output of the amplifier stage at a first  
6 frequency.

1           13.    The portable transceiver of claim 12, wherein the first frequency is the  
2 in-band receive frequency.

1           14.    The portable transceiver of claim 13, wherein noise generated by the  
2 pair of operational amplifiers appears at the output of the amplifier stage at a second  
3 frequency.

1           15.    The portable transceiver of claim 14, wherein the second frequency is  
2 an out-of-band receive frequency.

1           16.    A portable transceiver, comprising:  
2           means for modulating a data signal;  
3           means for upconverting the modulated data signal and provide a radio  
4 frequency (RF) signal;  
5           means for transmitting the RF signal;  
6           means for converting a received signal to a baseband signal; and  
7           means for filtering the baseband signal so that noise generated by the filter  
8 means is prevented from appearing on the received signal at a first frequency.

1           17.    The portable transceiver of claim 16, wherein the first frequency is the  
2 in-band receive frequency.

1           18.    The portable transceiver of claim 17, wherein noise generated by the  
2 filter means appears on the received signal at a second.

1           19.    The portable transceiver of claim 18, wherein the second frequency is  
2 the out-of-band receive frequency.